



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,864	04/18/2001	Tao T. Tao	T0457/7003 TJO	7511

23628 7590 04/22/2004
WOLF GREENFIELD & SACKS, PC
FEDERAL RESERVE PLAZA
600 ATLANTIC AVENUE
BOSTON, MA 02210-2211

EXAMINER

MARTIN, ANGELA J

ART UNIT PAPER NUMBER

1745

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/837,864

Applicant(s)

TAO ET AL.

Examiner

Angela J. Martin

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-113 is/are pending in the application.
- 4a) Of the above claim(s) 53-113 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-16, 18-20, 23-42, 44-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/9/04, 5/23/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 53-113 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected device and method, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 7/28/03.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 9 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for certain fuels, does not reasonably provide enablement for the list of all fuels. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to employ each of the fuels in the invention commensurate in scope with these claims.

4. Claims 49-51 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is not clear whether each anode material listed has a "self-repairing" property.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-5, 8, 10-16, 18-20, 23-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Mogensen et al., U.S. Pat. No. 5,350,641.

Rejection of claims 1-5, 8, 10-16, 18-20, 23-39 drawn to an electrochemical device.

Mogensen et al., teach an electrochemical device comprising an anode constructed of a material such that the anode is a chemically rechargeable anode and a source of fuel exposable to the anode (col. 2, lines 10-13). It also teaches a source of a chemical reductant to chemically recharge the anode (col. 3, lines 27-57); wherein the source of the chemical reductant is the source of fuel (col. 2, lines 10-13). Additionally, it teaches the anode comprises a metal (col. 2, lines 14-35); wherein the metal has a standard reduction potential greater than -0.70 V versus Standard Hydrogen Electrode (col. 4, lines 58-61); wherein the anode is chemically rechargeable to a reduced state from an oxidized state comprising an oxide selected from the group consisted of a metal oxide and a mixed metal oxide (col. 2, lines 14-35); further comprising an electrolyte in ionic communication with the anode, wherein the electrolyte is a solid-state electrolyte

Art Unit: 1745

(col. 4, lines 24-28), wherein the electrolyte has a formula of yttrium-stabilized zirconium (col. 4, lines 24-27). It also teaches the cathode in ionic communication with the electrolyte, which is a solid-state cathode, wherein the cathode is a metal oxide, which is a perovskite-type oxide having a formula of $\text{La}(\text{Sr})\text{MnO}_3$ (col. 4, lines 24-28).

Additionally, it teaches the device is operable at a temperature of about 1000 degrees C (col. 1, lines 14-15). It teaches the anode comprises the material tin (col. 2, lines 14-35); wherein the fuel, when exposed to the anode, is in contact with the anode (Fig. 2); and the fuel comprises a reservoir of fuel (Fig. 3), wherein the fuel is exposable to the anode via a guide connecting the reservoir to an inlet directed towards the anode (Fig. 3). It also teaches the fuel is a carbonaceous material, a hydrocarbon which is saturated and aliphatic, methane (col. 2, lines 10-13).

Thus, the claims are anticipated.

7. Claim 52 is rejected under 35 U.S.C. 102(b) as being anticipated by Sapru et al., U.S. Pat. No. 4,551,400.

Rejection of claim 52 drawn to an anode.

Sapru et al., teach an anode constructed of a material such that the anode is a chemically rechargeable anode (col. 1, lines 59-64).

Thus the claim is anticipated.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

Art Unit: 1745

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 35, 36, 40-42 and 44-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Priestnall et al., U.S. Pat. Application Pub. 2004/0058203 A1.

Rejection of claims 1, 35, 36, 40-42, and 44-48 drawn to an electrochemical device.

Priestnall et al., teach an electrochemical device comprising an anode constructed of a material such that the anode is a chemically rechargeable anode and a source of fuel exposable to the anode (p. 1, sect. 0001-0003). It also teaches the fuel is a carbonaceous material which is a hydrocarbon, and the oxygen-containing hydrocarbon is an alcohol, of C1-C4 alcohols, consisting of methanol (p. 3, sect. 0028). Additionally, it teaches the source of fuel is capable of being interchanged with a different source of a fuel (p. 3, sect. 0028). It teaches the device is capable of an electrical output of at least about 10 mWatt/cm² (p. 8, sect. 0131) which could be capable of an electrical output of at least about 100 or 200 mWatt/cm² by series connecting the cells (p. 9, sect. 0136).

Thus, the claims are anticipated.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-

Art Unit: 1745

1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


AJM